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ABSTRACT

This report reviews the work which has been carried out under the label of "research in student learning," in order to examine the significance of the findings for distance education, and to discuss some of the methodological issues raised in carrying out this research. The discussion also provides insights into conducting this type of research in distance education. It is concluded that research findings have revealed five elements for understanding student learning. The first, students' orientation to learning, is described as the collection of attitudes, aims, and purposes that express a student's relationship to a course and the particular educational institution. Orientation is concerned with a student's vocational, academic, personal, or social approach to education. The second element for understanding student learning concerns students' development as learners. This is described as a process in which students progress from memorizing facts to considering the abstraction of meaning, and the strategies students use in order to learn. The third element consists of the students' approaches to study, specifically, their distinction between a deep and surface approach to new material. The fourth element is the area of learning outcomes, or, what students actually learn from a course of study. The last element is the area of students' experiences of course design and assessment. Course design and assessment are noted as key areas where distance educators and educational technologists are able to influence the ways in which students approach their studies. (27 references) (DB)

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RESEARCH IN DISTANCE EDUCATION

RESEARCH INTO STUDENT LEARNING IN DISTANCE EDUCATION

ALISTAIR MORGAN

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RESEARCH INTO STUDENT LEARNING IN DISTANCE EDUCATION

ALISTAIR MORGAN

Deakin University
University of South Australia

This book forms part of IDE806 and UDE606 *Research in Distance Education*, which is a unit offered by the Institute of Distance Education, Deakin University and the University of South Australia respectively. It has been prepared for the *Research in Distance Education* team, whose members are:
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Part 1:
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Part 2:
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Morgan, A.R., *Case-Study Research in Distance Education*
Morgan, A.R., *Research into Student Learning in Distance Education*
Lockwood, F., *Data Collection in Distance-Education Research: The Use of Self-Recorded Audiotape*
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Part 2:
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Part 3:
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Enrolled students will also receive audiocassettes.

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INTRODUCTION

The aim of this Paper is to examine the work which has been carried out under the broad label of 'research in student learning' in order to look at the significance of the findings for distance education, and to discuss some of the methodological issues embodied in carrying out this research. The findings suggest areas for improving the 'quality of learning' both in terms of the actual content of learning as well as the processes involved.

Besides looking at the content of the research findings, the discussion will also provide insights into the methodological issues of doing this type of research in distance education. Many of the methodological issues are similar to the ones discussed in *Case-Study Research*, another Paper within Part 2 of this unit, as both of these approaches to research are primarily concerned with description and interpretation, with less emphasis on measurement and quantification. The methodologies adopted are primarily qualitative, utilising in-depth individual interviews with students. The intention is not to exaggerate a qualitative–quantitative distinction, rather, that a key feature of the student learning research is a philosophical commitment to acknowledge the conscious control of learners over what they do and how they do it. Also, the research attempts to generate theoretical insights into learning which are valuable for reflection on practice and improving the quality of learning.

THE KEY RESEARCH FINDINGS

The aim of student-learning research is to generate insights into how and why students tackle their studies in particular ways. The findings can be seen as providing an holistic understanding or conceptual framework for understanding student learning from the learner's perspective. We shall examine them under five key areas: (1) students' orientation to learning; (2) students' development as learners; (3) approaches to study; (4) the content of learning or the learning outcomes; and (5) students' experiences of course design and assessment. As much of this work is already documented (see for example, Marton *et al.* 1984, Gibbs *et al.* 1984, Morgan 1984, Ramsden 1988), this Paper will provide a brief summary and

commentary on the major concepts and particularly their significance for distance education, and also a commentary on methodology.

Orientation to learning

Orientation to learning is the collection of attitudes, aims and purposes that express a student's relationship with a course and the particular educational institution. Unlike motivation, which would describe students as more or less motivated, *orientation* is concerned with the qualitatively different ways students relate to their courses. The main variations in *orientation* are set out in Table 1. These orientations have been identified with both conventional students and those studying at a distance (Gibbs, Morgan & Taylor 1984). Table 1 shows the 'idealised types' of orientations, although in reality students will describe a more complex combination of orientations. An important feature of *orientation* is that it is not fixed. Students will change and develop over time. The notion of changing orientations is particularly important with adult students, who often comprise the largest population of students studying at a distance. With adult students, often studying part-time, the interactions of career 'lines' (in the workplace or domestic setting) with career 'lines' as a student contribute to a changing context of orientations. *Orientation* can be regarded as a mediating concept between a student's social and political context and a course of study.

Orientation to learning provides a broad 'backcloth' for understanding how students come to be studying and what they hope to gain from study. It provides an important concept for developing theory in distance education.

In terms of doing research, the concept of orientation can be used to develop typologies to describe more of the detail of what students hope to gain from a specific course. The Paper on *Case-Study Research* in this Part of the Unit provides an example of this in the context of an evaluation of home computing in distance education.

In methodological terms, some of the key interview questions have been as follows: 'How do you come to be taking this course?', 'What do you hope to gain from study?', 'What will it be like if it fulfilled your highest expectations?', 'How do you feel about the course?', and 'What do you want to learn?' The aim of adopting this sort of interview framework

is to get students reflecting on aims and purposes in their own terms and from their own perspectives.

TABLE 1

Students' Educational Orientations

Orientation	Interest	Aim	Concerns
Vocational	Intrinsic	Training	Relevance of course to future career
	Extrinsic	Qualification	Recognition of value of qualification
Academic	Intrinsic	Follow intellectual interest	Choose stimulating courses
	Extrinsic	Educational progression	Grades
Personal	Intrinsic	Broadening, self development	Challenge, personal interests
	Extrinsic	Compensation, proof of capability	Pass the course
Social	Extrinsic	Have a good time	Social facilities and sport

By asking 'how' questions, rather than 'why' questions which tend to elicit rationalisations, it is usually possible to get interviewees to give life history type accounts of themselves and their educational and employment backgrounds. Often, this open-ended approach will provide insights into personal and domestic contexts and the value which has been placed on education in general in the domestic grouping. It is often possible to probe further, to find out more about the level of domestic support (or lack of it) which a student experiences in his or her home setting.

In summary, *orientation* reminds us of students' subjective perceptions of their studies. Often, teachers and distance educators seem to be unaware of the very different orientations held by students. It is often assumed that students are engaged in study for the single reason of studying the subject and gaining the highest grades in assessment. It is likely that this was the distance teacher's orientation, a strong intrinsically academic orientation. However, the studies on orientation provide a strong reminder of the complex mixture of reasons that students—especially adult students—have for continuing their education.

Students' development as learners

How do students change and develop as learners as a result of their experiences of education? As teachers we are aware that change does occur for many of our students, but we are often not certain of the precise nature of these changes, or the conditions which facilitate change. What are these changes? Perry (1970), in 'Forms of intellectual and ethical development', has described how students in a liberal arts college in the USA developed their epistemological framework. From initially holding an absolutist conception of knowledge, where the teacher was perceived as the authority figure 'knowing all the answers', Perry described how students gradually moved towards a more relativistic conception of knowledge, and finally, how some students developed a personal commitment to a particular relativistic position.

Säljo (1979) and Marton and Säljo (1984) in Sweden have independently developed a similar scheme, by studying people's conceptions of learning: five distinct conceptions of learning were identified. Conceptions 1, 2 and 3 are concerned with learning as an accumulation of information, the memorisation of facts, and the learning of set procedures to be used in practice. In contrast, conceptions 4 and 5 describe learning as the 'abstraction of meaning' and as an 'interpretive process aimed at understanding some aspect of reality'. In the case of conceptions 1, 2 and 3, learning is seen as a relatively passive activity with the emphasis on reproducing knowledge, whereas for conceptions 4 and 5, knowledge is actively constructed by the learner. Although Perry and Säljo were concerned with conventional students, similar differences have been identified with Open University students (Morgan, Gibbs & Taylor 1981). Some of the details from student interviews will be included here,

as they present the ideas vividly. Conception of learning seems to be particularly important for distance education students who, with the absence of an immediate peer group, can have considerable difficulty in finding out what the demands of academic study actually are. For example:

> *When I do think about learning I'm still at school—I know it's a very different sort of learning—I browse through some of the books that I only got last week—I'm still in the school sort of learning—the facts and dates and names. And if I read something I think, 'What have I read?'—at the moment I feel very worried about not taking in and remembering what I am reading—I still feel very confused about it.*

It seems that new students, like the one quoted above, will have to undergo some sort of transition in their conception of learning to cope with the demands of the course materials and the assessment requirements. In fact, during the first two years of study a variety of changes were discernible. For example, one student described the first year as follows:

> *I just think that I harped back to school days too much—I am surprised there aren't the facts presented there for me—I read it through and I think, 'Oh, I don't know what on earth I have read there'. I read it through page after page.*

In her second year of study she described her work very differently:

> *Obviously, there is an amount of learning of facts and figures, but basically, I think of it more as understanding the different issues that are brought up in either social science or technology. Because there aren't always hard facts to learn; there are always so many different sides. So it isn't so much learning as understanding the problems and the factors that affect the final decision, because there isn't really a 'right' and 'wrong' answer, it depends who you are... Learning as we are being taught is meant as understanding, rather than learning facts by memory.*

These two descriptions of learning are clearly very different. In terms of Säljo's framework, this student has moved from conception 1 or 2 to conception 4. Besides seeing knowledge and learning in a different light, gains in confidence in general are important. For adult students studying part-time at a distance, developing confidence can be a key issue for

developing as a student. Sussing out what is required is an important step for students in distance education. Closely linked to this gain in general confidence was an increasingly strategic or selective study pattern. No longer was all the course material, particularly the specially prepared correspondence text, seen as essential reading which had to be covered in the same depth.

> *I'm more selective—I look at a unit and if I know that they are not going to be interesting, I don't waste a lot of time trying to do it—it's the type of course that you can leave out bits—you can apply theory to any culture—as long as you have done the theory you can apply it.*

Students develop the confidence to miss out parts, to be more selective and to focus their study around the assessment. This is not to say that their study became merely an 'assessment driven' ritual. Rather, studying was becoming more focused and the aim and purpose in working through the correspondence text was clearer. This is a marked contrast to some new students who saw all the text at the same 'level', and described their study as just 'reading and reading from cover to cover'.

Developmental studies (Taylor & Morgan 1986) have identified how, for some students the demands of different subject material in their second year of study can lead to a 'regression' in students' development. For example:

> *Look, I'm a foundation student in this subject. I don't pull the units to pieces, I accept what they are saying because I assume that they know what they are talking about, and they are putting it that way probably to spoonfeed me, as I'm unlikely to understand it any other way.*

Even though this student had successfully completed the first foundation course, the demands of a different subject area seem to have induced a sort of regression and expression of lack of confidence.

Developmental studies with students from foundation course through to graduation (Taylor & Morgan 1986) have described the changes in students in the three key areas of confidence, competence and control in learning, and how the relationship of confidence and competence is intimately linked with conception of learning and also approach to study. Also from a re-analysis of some of this data, another conception of learning has been identified with a small number of students (Beatty,

Dall'Alba & Marton 1990) that is, learning as changing as a person, it is about the 'way of seeing' what is learnt. This builds on the idea of confidence in that it implies a fundamental change in seeing oneself. This is a change from seeing oneself as an object (things just happen to you) to seeing oneself as an agent of what is happening (you can make things happen). Although this conceptualisation does not imply having the power to control what will happen, it does mean a critical awareness of the structural factors involved in society.

The importance of students' development as learners or their conception of learning is that it appears to have a limiting influence on what students will do when tackling a particular learning activity.

Some of the detail of these studies has been included here, to show the sort of interview data which can be gained by asking students, 'What does learning meaning to you?', 'Can you give me examples?' Also, conception of learning and facilitating students' development as learners is a crucial issue in distance education for student support, both in practical and resource terms.

Approaches to studying

What do individual students do when confronted with a particular learning task? How is it that some students gain a thorough grasp of course material from their reading whereas others fail to grasp the author's arguments and intentions?

Marton and Säljo (1976) have identified qualitative descriptions of how students tackled the reading of academic articles. They identified the major distinction between a 'deep approach' and a 'surface approach'. The significance of these approaches is that they are linked to different learning outcomes. If students concentrated on memorising the facts and the details, seeing the task as externally imposed (a surface approach), they would end up with a poor understanding but with knowledge of detail. In contrast, if they intended to understand the material and interacted with the content of the text (a deep approach), they stood a better chance of getting the author's 'message'. The original work was done in naturalistic experiments, but the concepts have been extended and applied to a wide range of normal studies (Marton *et al* 1984), including distance education (Morgan, Taylor & Gibbs 1982).

The key variations in approach to study are summarised below.

Deep approach
Intention to understand
Focus on what is 'signified' (e.g. the author's arguments)
Relate and distinguish new ideas and previous knowledge
Relate concepts to everyday experience
Relate and distinguish evidence and argument
Organise and structure content
Internal emphasis: 'A window through which aspects of reality become visible, and more intelligible.'

Surface approach
Intention to complete task requirements

Focus on the 'signs' (e.g. the text itself)
Focus on discrete elements
Memorise information and procedures for assessments
Unreflectively associate concepts and facts
Fail to distinguish principles from evidence, new information from old
Treat task as an external imposition
External emphasis: Demands of assessments, knowledge cut-off from every day reality.

(Ramsden 1988, p.19)

The importance of approach to study is that it is directly linked both empirically as well as logically. Helping students to engage in a deep approach is therefore a crucial issue for all teaching and learning. In distance education, the course design process should enable these issues to be addressed directly. However, as presented elsewhere in this Unit, the emphasis on knowledge production and distribution, or the instructional industrialism in distance education, can often obscure a detailed awareness of how students actually tackle their studies. Also, some evaluation studies in distance education can focus on issues of workload and study time, for example, without paying attention to what students are actually doing as they are tackling their work. Helping students to develop as learners, and so change their approach to study, will involve them becoming more aware of how and why they are studying. This seems to be a crucial issue for distance education. Strategies to engage students in dialogue, both in the messages within teaching

media, as well as with the student peer group and with their tutors, are key areas for improving the quality of learning in distance education.

Learning outcomes

What do students actually learn from a course of study? In what way do students' understandings of key concepts and ideas change as a consequence of studying a course? The crucial question is to explore the content of students' learning from their perspectives. Although students can often score pass-level marks in tests, assignments and examinations, the way in which they understand key concepts and theories has often not changed substantially. Research in the content of student learning, from the second-order perspective (Marton 1981) attempts to describe the 'what' of thinking, that is, the meanings which people ascribe to concepts, theories, and so on. Ference Marton (1981) has termed this field of inquiry *phenomenography*.

This research approach has been used to explore how people understand concepts in a wide range of subject areas, covering economics (Dahlgren & Marton 1978), social science concepts in distance education (Taylor, Gibbs & Morgan 1981) and concepts in physics and chemistry (Ramsden 1988).

The importance of this research is that it can provide a key focus for reflection on practice. It seems that if the aim of our courses is to encourage learning concerned with conceptual change, then making students and teachers more aware of the different conceptions of the phenomena in question is likely to facilitate this conceptual change. Although, superficially, this approach may appear only feasible in conventional educational settings, it has been adopted for developing teaching materials in the Open University.

In one example, members of the course team (*Third World Studies* course code U204) interviewed prospective students about how they understood key terms, such as 'development', 'underdevelopment', 'industrialisation' and which countries they would categorise as part of the Third World. The understandings from these interviews provided a more informed sense of the student audience. Also, activities were built into the start of the course specifically designed to help students become more aware of their initial conceptions of key concepts taught in the course.

In another example, prospective students on the *Social Science Foundation Course* (course code D102) were asked the question 'Is Britain capitalist?' to elicit their conceptions of capitalism. In the section in the course material looking at capitalism in Britain, a range of quotations from the interviews were used as a starting point for the discussion. These quotes were followed by the author's commentary to interrogate the nature of these conceptions and how they relate to more 'expert' conceptions of the subject material.

These examples, using research into the content of learning, can be seen as examples of establishing dialogue in text in distance education, in the manner suggested by Evans and Nation (1989) and Juler 1990.

Aspects of course design and assessment

Course design and assessment is one of the key areas where distance educators and educational technologists have some scope for influencing how students go about their studies. The research from the second-order perspective highlights the crucial importance of *approach to study* in determining the quality of the learning outcomes. Research in conventional settings into curriculum and assessment by Becker, Geer and Hughes (1968) and Snyder (1971) has identified how students can be 'induced' into adopting memorisation strategies to cope with certain assessment demands. The pressures of the 'grading game', with the emphasis on reproducing information, can be seen as an 'unintended side effect' of assessment which led students to adopt surface approaches to study.

In distance education some of the course design strategies can have the opposite of the desired effect when influencing student learning. For example, student self-assessment questions do not necessarily encourage students to adopt a deep approach to study. In fact, there is often a large mismatch between an author's assumptions and expectations and what students actually do with these teaching devices (Lockwood 1991).

Similarly, some courses have adopted particular course designs based on pedagogical rationales to allow students more freedom and choice in their studies, as a move towards more independent learning at higher levels. However, research from the second-order perspective (Morgan 1988) highlights the problems they can encounter when they have been

'socialised' into expecting more tightly structured learning materials by experience of foundation level courses.

A priority for research in distance education is to improve our understandings of students' experiences of course design and assessment, so as to contribute to reflection on practice.

To summarise: the research findings in student learning, generated from a second-order perspective, can contribute to developing theory which is grounded in students' experience. This research serves to relate students' personal and social contexts, through orientation to study, to the more detailed processes of how students tackle particular learning tasks.

Methodological commentary

In outlining the research findings above, there have already been some remarks about methodology and insights into actually doing research. There has been reference to the second-order perspective and the way this has been developed into the field of phenomenography. It is not the intention in this Paper to polarise qualitative versus quantitative research methods, rather, to the contrary. Although there can be factors within an organisation in distance education which lead to what has been labelled an 'hegemony of survey method' (Morgan 1990), this is not to claim superiority for one or the other method. Rather, that organisational factors and the issues of geographical distance can sometimes lead to a predominance of the postal survey questionnaire. The position set out by Säljo (1988) provides a useful statement of a 'position' for the present research in student learning, and also for informing research projects which may be carried out in this MDEd course.

> In the research reported [here] it is the basic tenet that there is no necessary conflict between qualitative and quantitative approaches for generating and analysing data. Indeed, it is highly questionable whether it is meaningful at all to argue about method without simultaneously considering the research problem one is facing and the knowledge interest being pursued. Given the conception of learning outlined—it is evident that the family of methods conventionally referred to as qualitative is of primary importance. A thorough understanding of what learning means in concrete terms in various settings presupposes a detailed analysis of how students deal with the tasks they are presented...In saying this we are trying to establish another fundamental assumption behind the research into everyday

> human learning...Access to the *learner's perspective* on the activities of teaching and learning is essential for understanding educational phenomena...and for improving education. (Säljo 1988, p.35)

The emphasis throughout the research on student learning is understanding from the learner's perspective. Although individual, face-to-face interviews have been the most widely adopted method, other approaches, such as telephone interviews, open-ended questionnaires, diaries and self-recorded audiotapes are also of value and seem to have considerable potential in distance education.

From the discussion so far it will be clear that the focus in the research on student learning is description and interpretation, with a methodological openness. Research may adopt interviews, observations, the analysis of written documentation, some use of questionnaries, and so on. There are many similarities in methodology to what is included in the Paper on *Case-Study Research*. In data analysis, both approaches share the problem that there are no set algorithmic procedures as, for example, in survey research. However, qualitative researchers have developed and documented a variety of procedures.

One of the important approaches to analysis is that which has been termed 'grounded theory' (Glaser & Strauss 1967); the emphasis is on the generation of theory which is grounded in the data.

> Grounded theory is a detailed grounding by systematically and intensively analysing data, often sentence by sentence, or phrase by phrase of the field note, interview, or other document; by constant comparison, data are extensively collected and coded ... The focus of the analysis is not merely on collecting or ordering as a mass of data, but on organising many ideas which have emerged from the analysis of the data. (Strauss 1987, p.22)

A key feature in all qualitative analysis is the intense immersion in the data, looking for patterns and themes, similarities and differences between individual cases. Analysis and interpretation continue side by side with data collection. Preliminary interpretations and insights are documented through 'memo-ing' (to oneself or the research group), as the research proceeds. Although the stages in interpretation and analysis in qualitative research are difficult to specify in detail, some of the key features can be spelt out.

Marton (1988) documents the style and approach of a phenomenographic analysis of interview data, where there is access to complete transcripts. The first step is a selection process to identify what are the relevant sections of the transcripts. It continues as follows:

> The selected quotes make up the data pool which forms the basis for the next crucial step in the analysis. The researcher's attention is now shifted from the individual subjects (i.e. from the interview from which the quotes were abstracted) to the meaning embedded in the quotes themselves. The boundaries separating individuals are abandoned and interest is focused on the 'pool of meaning' discovered in the data. Thus each quote has two contexts in relation to which it has been interpreted: first, the interview from which it was taken, and second, the 'pool of meanings' to which it belongs. The interpretation is an interactive procedure which reverberates between these two contexts... In concrete terms, the process looks like this: quotes are sorted into piles, borderline cases are examined, and eventually the criterion attributes for each group are made explicit. In this way, the groups of quotes are arranged and rearranged, are narrowed into categories, and finally are defined in terms of the core meanings, on the one hand, and borderline cases on the other. Each category is illustrated by quote from the data. (Marton 1988, p.154)

By means of this procedure, categories are developed which are generated from the data, in contrast to some forms of content analysis where they are determined in advance.

This form of detailed qualitative analysis is time consuming, but has been adopted particularly in describing the content of learning outcomes and developing categories of approach to study and conception of learning. Although this description of a phenomenographic analysis seems very detailed, the basic process is relevant to analysing all forms of qualitative data.

The intensive reading and re-reading of interview transcripts (or field notes with annotations made immediately after an interview), is a crucial stage of uncovering what seem to be the 'significant points', or the 'essences' of what students are saying. What are the similarities and differences between students? What are the substantive emerging themes and issues? The interpretation process is a 'dialectic' of maintaining an holistic perspective of individual informants and, at the same time, searching for overarching themes, issues and categories. Similarly, in the

reporting of the research there is a need to retain a balance of abstract description of the emerging issues at the same time as presenting a richness of individuals' experiences.

This brief comment on methodology is intended to highlight some of the key factors involved in doing research. As already stated, there are 'standard methodological packages' to adopt, rather than a general research strategy with a particular philosophical commitment.

A number of publications provide valuable input into informing and communicating the nature of the 'general research strategy'. Hammersley and Atkinson (1983) and Hammersley (1989) explore the issues as portrayed in ethnography and also to what extent theory can be generated in qualitative research. Also Grace (1990) takes work from hermeneutics for developing methodological approaches in distance education.

CONCLUSION

Research in student learning in distance education generates unique insights into how and why students tackle their studies. Although the social and domestic context is different from conventional educational settings, the crucial issues of approach to study and the influence on learning outcomes are of equal importance. Extending understanding of course design and approach to study seem to be important research areas. Also, through the concept of *orientation*, there can be a link into the adult learners' social and political contexts of study so as to recognise social structures and human agency (Evans & Nation 1989) in adults' learning experiences.

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